

Locusts







From Whom ....

Col. Sec

Place ....

\$

Date ....

22/7/14

Locust destruction in the Malacca Border

Staff necessary for

Former Papers.

## MINUTES.

Final Paper.

Col. Sec

I enclose the D of A's ideas of the staff necessary for locust destruction in the Malacca border. please refer to the D of C.

2. I am prepared to ask the council to vote a sum sufficient to allow for the employment of a European to supervise this work. The D of C can advise as to the selection of this office and he can also say what staff of trained Manders and coolies he would advise as to employ.

3. I am asking the Ch. Secretary what trained Manders can be spared.

Int. R. J. W. 25/7/14

D of C

Referred

The papers containing your report upon locust in Malacca is with H.E.

Int. W. G. M. 29/7/14



C.S.

If I may say so, where Malacca is to be spend twenty thousand dollars, Negri Sembilan should be spending upwards of one hundred thousand, and Johore something which I cannot well estimate for want of knowledge of the country. Otherwise the scheme of the D of A is a case of loading the work chiefly onto Malacca. Is Negri Sembilan going to spend \$100,000 on locust catching in 1915? I expect not.

The work in Malacca ought not to cost \$200,000.

I attach a map showing the distribution of locusts in Malacca in the week ending July 12th. The Col. L. R. & S. D. O. S. have supplemented <sup>the information</sup> which I collected myself, and it is fairly accurate.

Please note that Hoppers are known to me in nine places (some <sup>more than</sup> half grown). These hoppers give us 4 weeks in all before they fly.

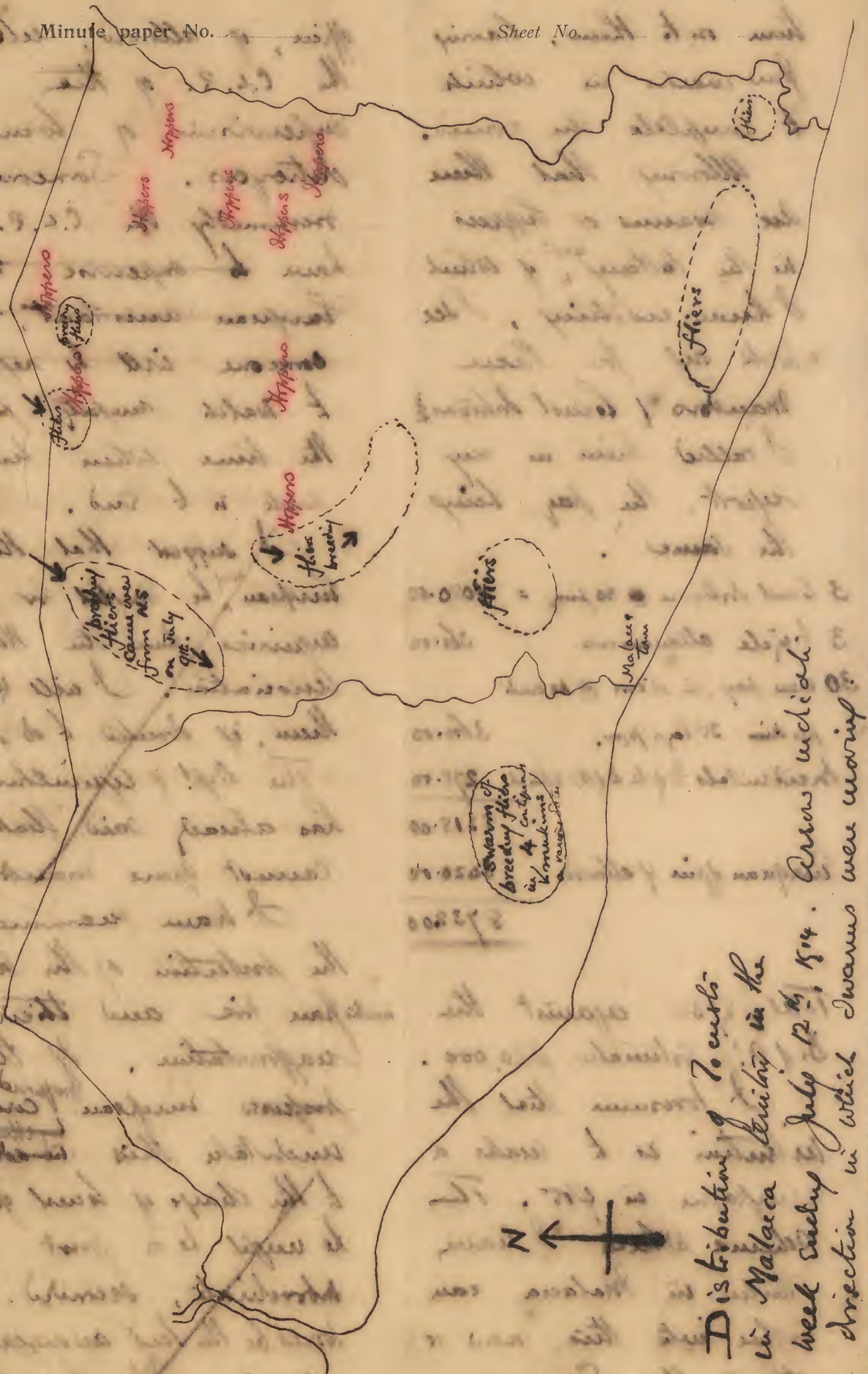
A week ought to suffice for destruction at each place. Therefore two Mandors can be provided with work on them.

Note next that there are 8 swarms, breeding mostly. Their progeny come up for destruction in turn about a fortnight or perhaps a little more later, and the two mandors



Minute paper No. ....

Sheet No. ....



Distribution of *Toxotes*  
in Malacca Peninsula in the  
week ending July 12th, 1914. Arrows indicate  
direction in which swarms were moving.



turn on to them, having  
four weeks in which  
to complete the work.

Allowing that there  
are swarms of lepers  
in the gallery <sup>work</sup> of which  
I know nothing, I see  
work out for these  
maunders (locust destroyers)  
I called them in my  
report, the pay being  
the same).

3 locust destroyers @ 30 pm = 1080.00

3 hq. allowances 360.00

30 mens pay per diem @ 40 cents

per diem 25 days p.m. 3600.00

Incidentals  $\frac{3}{8}$  of the D. of A. S. Estimate 278.00

5318.00

European office if allowed 3420.00

8738.00

Total \$8,738 against the  
D. of A. S. Estimate \$20,000.

I presume that the  
intention is to make a  
campaign in 1915. The  
scheme which I have  
started in Malacca can  
evolve into this now or  
then, the European

office, if allowed, releasing  
the C. L. R. of the  
superintending of locust  
destroyers. Someone -  
presumably the C. L. R. will  
have to supervise the  
European assistant, and  
someone will be required  
to watch carefully for  
the time when his  
work is to end.

I suggest that this  
European <sup>may</sup> be sought for by  
enquiries from the Malacca  
Association. I will speak  
them, if directed to do so.

The Dept. of Agriculture, ~~has~~  
has already said that it  
cannot spare maunders.

I have recommended  
the protection of the gallery  
work from fire and their  
representation. If the  
~~proposed~~ European <sup>proposed</sup> could  
undertake this ~~other~~ <sup>other</sup>  
to the charge of locust operations  
he might be a first  
introduction, second. That  
would be the best arrangement  
of all Mayhew

30.7.14.

W.C.



Minute paper No. ....

Sheet No. ....

together with local  
 instruction, he will fully  
 save his pay, and in  
 that case a first pair  
 second would be the  
 best type for the work.

Otherwise it is a  
 question of finding a  
 young planter  
 assistant out of work  
 [and of course interested  
 in keeping the ball  
 rolling]. I will  
 look for any suited  
 but it seems to me  
 costly to employ one  
 for 3 months.

The Department of  
 Agric. has  
 already said that it  
 cannot spare men.

W.G.H.

20.7.14

Y.E. Submitted.

The work should begin at once  
 and an European assistant should  
 be in local charge. It can be  
 assumed that the Forest Dept. will  
 not be able to spare a  
 man, and the D. of G. should  
 engage a young planter forth-  
 with.

A staff might be made as  
 suggested by the D. of G. with  
 5 mandors and 30 coolies. The  
 full strength of 8 mandors  
 and 30 coolies might be ap-  
 proved later if recommended  
 by the D. of G.

All expenditure to be debited  
 for the present to a suspense  
 account under the heading of  
 forest destruction.

The D. of G. to report at the end  
 of the current month upon the  
 work done and the expenditure  
 incurred. W.G.H. 8.8.14

PS. Does Y.E. desire any  
 further action to be taken  
 upon the D. of G.'s detailed  
 report (6) in 107/14? W.G.H.

D. of G.

The above has been approved  
 by H.E. Please arrange with



bring their work to bear on  
them, having four weeks in which  
to complete the round.

Allowance may perhaps be made  
for undetected swarms, hoppers of  
which I know nothing

R.M. (to whom this is referred) for engaging the  
European Assistant and starting work without delay.

W.G.M. 10.8.14

C.S.

I have engaged Mr. Cowley Brown, and am sending him  
forward to Malacca to report to the Resident on the morning  
of the 15th. and to commence work.

I have had Mr. Cowley Brown medically examined and enclosed  
the certificate required under G.O. 6.

Mr. Cowley Brown had filled in the front of the form (372)  
but I believe that the nature of the source from which he  
will be paid - a strange account - makes that necessary.

I may put it on record here that Mr. Cowley Brown would  
like to enter Government Service permanently.

Though it is not precisely stated, the papers make it  
certain that the pay intended is \$200 per mensem with \$50  
commuted travelling allowance. As it will be most convenient  
to pay him in Malacca will you please authorise the Resident  
to spend under the heading Locust destruction up to \$2500  
(two thousand and five hundred dollars)

Special Assistant 4½ months @ 200	900
Commuted allowance .....	150
Cycle allowance .....	185
Purchase of cycle .....	550
Three menders .....	405
their bicycle allowances .....	135



50 coolies	168.75
incidentals new traps etc	400.00

to carry on to the end of the year.

I propose to visit Malacca at the earliest possible date, but cannot leave at once as my only clerk is in hospital.

The D. of A. put down \$500 for a motor cycle. I find that the P.W.D. in Singapore has been paying \$550 and have put down the larger sum: but taken no action as a machine may be available in Malacca.

J.H.B. 14.8.14

C.S.

This paper was sent direct to me by the Director of Ordnance and I kept it anticipating he would be here yesterday or today but he is not.

Mr. Gwiley Brown has arrived so I understand that he may buy a Motor Cycle at a price not exceeding \$550? think a Motor Cycle is absolutely necessary.

I ask for authority by wire or by return post:

Intd. W.G.M. 18/8/14

Y.E.

It is hardly fair, I think, to ask a man in a temporary appointment to buy a Motor Cycle. It would be better for the Govt. to buy it, and to put it at his disposal.

Int. W.G.M. 18/8/14

Col. Sec

Yes. The Motor Cycle can be provided.

2. A vote of £2,500 must be asked for from the Finance Committee.

5. Mr. Gwiley Brown sent in an application from the F.M.S. for permanent employment under the Col. office. Int. R.J.W. 28/8/14



R.M.

Please note.

Intd. W. G. M. 20/8/14

G. S.

Noted

Intd. W. G. M. 21/8/14

3 of 6

Please note

Intd. W. G. M. 27/8/14

G. S.

Your instructions dated 8/8/14 are to the effect that I should report at the end of the <sup>month</sup> I do see Mr. Cowley Brown commenced work on the 15th August. I proceeded to Malacca on the 26th arriving there on the 31st. and in conjunction with the Resident and Mr. Cowley Brown obtained a Motor Cycle for \$525.

I took Mr. Cowley Brown to various places in Malacca where locust swarms exist, teaching him what I knew about locusts, in order to put him into the way of recognizing the sexes, ascertaining how near flying the hoppers are by their appearance, and of knowing how near egg laying the females may be by the condition of the ovary. I also taught him to recognize likely breeding grounds. Mr. Cowley Brown had previously had the loan of many books from me which he has read and apparently digested.

It now remains for him to gather experience. I have asked him to keep most careful records in his diary of the finding of locusts and the nature of the circumstances under which they may be existing. About the time of Mr. Cowley Brown's appointment I had asked the Resident to be so good as to see about obtaining more traps, built in Malacca on the new models then newly received from Serenban; but he found it impossible to get them made in Malacca and was forced again to send to Serenban for them. He tells me that part of the traps have been received and that he has asked for the expedition <sup>up</sup>



sending of the rest. when these come Mr. Cowley Brown will have four new model traps. He engaged a second locust destroyer last week, but the man is not very well thought of by either of us. He will be given a fair trial, and should he fail to give satisfaction another man will be sought. As the Negri Sembilan has been employing 24 Manders and is dismissing 17, a new man may be found easily.

The audit requiring the Residents signature on bills, it is quite unnecessary that I should see them. The expenses to date are

Mr. Cowley Brown's <sup>pay</sup> 1/2 month .....	\$100-00
Motor Cycle .....	525-00
Second Mander from 25th .....	7-34
Traps about .....	150-00
Mr. Cowley Brown's transport .....	50-00
Coolies about .....	50-00
Transport of traps say .....	10-00

\$872-34

which charges are additional to those incurred against the old grant of \$500 which is <sup>now</sup> ~~may~~ used up.

Secondly as regards locusts in Malacca. Please see the map on the back of sheet 2. The locusts which were hoppers at the time when the map was made, are fliers now, and are no longer where they were. The fliers of the time when the map was made have left descendants, now ~~find~~ themselves turning into fliers. On the whole the infection of Malacca is less than what it was, and the breeding fliers of swarms Nos. 5 and 4 of the map, have left few descendants. The swarms 2, 6, 7 & 8 have bred freely especially 7, so that the Tebong Estate almost from end to end of its 5,000 acres is full of locusts.

Sd. Henry Burkill 31-3-14



P.S.

The third locust destroyer is not called for yet, but when the new fliers 5 weeks hence begin to breed, and 5 weeks hence their hoppers begin to emerge, it will be seen if he is wanted.

Intd. I.H.B. 51-8-14

Y.E.

Submitted for information. The delay in obtaining traps is annoying; otherwise the report is satisfactory.

Intd. W.G.M. 2/9/14

C.S.

I agree

Intd. R.J.W. 2/9/14

R.M.

To see

Intd. S.McA 2/9/14

C.S.

seen

Intd. W.C.M. 4/9/14



The Resident to consult Mr. CJBain and state what further assistance is required.

Ltd. W.F.W 30/8/15

R.M.

For necessary action

Intf. W.F.W 30/8/15

C.S.

I have consulted Mr. Lewton Brain as requested and enclose here -with copy of a report from his Chief Agricultural Inspector which he forwarded to me.

2. Mr. Lewton Brain suggests that the total \$28,000 mentioned in the above report should be divided between Malacca and the Federated Malay States .

He further suggests that instead Malacca should pay a fixed sum of say 20,000 to the Federated Malay States locust account and that the work of locust destruction not merely on the Malacca-Negri Sembilan boundary but also elsewhere should come under his department.

3. While considering as I always have done, that the work of locust destruction should be under one management, I am not prepared to agree to Mr. Lewton Brain's suggestions in toto.

In the first place I see that the Johore border is included as well as that of Negri Sembilan in the estimate of the Chief Agricultural Inspectors and Johore should therefore make a contribution towards the expenses.

In the next place I think the estimate far too high. For if the Negri Sembilan border which is the worst breeding ground of the locust required only 24 sprayers this year Malacca & Johore cannot need 100 extra sprayers between them.

I should say that the estimate could be almost halved say \$15,000 and I think that Malacca should contribute \$5,000

We shall probably spend just over \$10,000 this year on locust



destruction in Malacca.

I do not think therefore the total contribution of Malacca should amount to more than \$15,000.

Intd. W.C.M. 6/10/15

R.M.

There has been a mistake. Mr. Cowley Brown's views were wanted and not those of Mr. Lewton Brain. I am sorry.

Intd. R.J.W. 8/10/15

C.S.

I enclose a copy of Mr. Cowley Brown's views by which it will be seen that he is in favour of the bag trap system solely and not against spraying.

2 I do not see any reason to alter my minute of 22/9/15 and 6/10/15 on this paper. The bag trap system is not sufficiently effective in the big lalang wastes along the M.S. Malacca border.

spraying, I am afraid must be resorted to there and it must be done as one piece of work under one management and the expense shared between the F.M.S. and the Colony. If the Johore boundary is to be included also (I think it should be) then Johore too should share also in the cost.

Intd. W.C.M. 18/10/15



29th July 1915

Sir,

With reference to your paper No.2544/15 I have the honour to report that I visited Malacca from the 20th to the 24th and discussed locust matters with the Resident and Mr. Cowley Brown.

2. I visited all the districts in which destruction work was being carried on and also a number of places in which locusts had at one time or another occurred.

3. The work may be divided into two classes—that among the Kampongs, sawahs, and estates particularly in the central Dist and that among the lalang wastes (forest reserves etc) on the Negri Sembilan-Johore boundaries. The former work has been attended to quite thoroughly, though even here more apparatus is required.

4. Little work however has been done in the second class of country and what has been done, owing to the methods employed and the scale of work, can have had very little influence on the incidence of the locusts.

5. If the destruction work in Malacca is to be carried out on the same lines as in the Federated Malay States and Johore, it will be necessary to deal with the lalang areas much more vigorously: while the work in the cultivated districts should be carried on as before.

6. As regards methods, I think there can be no doubt that it will be advisable to use poison in these lalang wastes and I understand that the Resident would have no objection to this. He considers, however, and I quite agree with him that poisoning would be far too risky in the neighbourhood of the Kampongs and here I am afraid it will be necessary to retain the slower bag-trap method.



7. Mr. Cowley Brown considers, I think rightly, that one European will not be able properly to supervise work on the lines suggested and I am afraid that it will be necessary to employ another assistant for the border region. The Resident suggested that this assistant should be stationed at Tampin and should work on both sides of the border, in which case his salary and allowance would be shared between the Federated Malay States and Malacca. I am inclined to think this would prove the best arrangement and certainly no attention should be paid by any assistants in this districts to the boundary lines.

8. I am afraid that work in Malacca, owing to the denser population and the impossibility of using poison over large areas will be more expensive than in the Federated Malay States. Up to the present I understand that expenditure has averaged about \$800 per month. If a good deal more apparatus and materials are to be bought and the work is to be carried out on a large scale, the expenditure must range from \$1,500 to \$2,000 per month or say at least \$20,000 for the year.

9. I think it is agreed that this work should be coordinated with that in Negri Sembilan and Johore and that the Special Assistant or Assistants should be attached to this Department. They would, I take it, be directly under the control of the Chief Agricultural Inspector here.

10. It may be necessary to introduce legislation on the lines of Sections 12 A, 13 and 14 of the Federated Malay States Agricultural Pests Enactment, as amended.

11. In conclusion I should like to say that I consider that Mr. Cowley Brown has done the work he set out to do extremely well, I should be very glad if he could stay on and supervise the work generally in Tampin and Malacca. I understand, however, that he does not expect to keep on with this work and that it will be



it will be necessary to endeavour to obtain other Assistant

I have etc

ad. L.Lewton-Brain.

Director

The Under Secretary  
Federated Malay States  
Kuala Lumpur.



Copy

R.M.

The only two methods of destructions are bag-trap and spraying: these are two dissimilar classes of destructive work. Bag-trap is the more effective in the long run and bag-trap work is also the more practical method. Bag-trap work is easily picked up by natives. Bag-trap and sheets are very probable. Natives see immediate results from their labours and do not become slack as is liable to be the case when no immediate results are visible i.e. spraying. Bag-trap can be used in Kampungs, sawahs, radangs, bukit lands etc, and this is not like spraying a work which has to be confined to certain localities.

I am of opinion the present lines (bag-trap work) are the right lines upon which destruction in Malacca should be run and that greater control of locusts than obtained at present can be gained better by extending the present system than by innovating spraying.

My personal view regarding the future is that bag-trap work solely should be done. Bag-trap work was the one method employed in Malacca during the last year, i.e. twelve months.

The vote and extensions for 1915 amount to \$10,200. This is sufficient, or at the most just slightly inadequate to carry on destruction with the present labour force and apparatus (bag-traps) until the end of the year, but is insufficient if spraying is begun this year as the balance \$3,157-26 as at Oct 1st. 1915 of the \$10,200 is too little to allow of spraying being done on a scale capable of showing good results soon after commencement.

In 1916 or at once to secure greater control of locusts by A. bag-trap method, it is necessary to have only another six bag-trap and attendant sheeting along with the services of an additional officer and those of another locust scout or two; but to secure



greater control by the B. Spraying method a spraying machine for every coolie is necessary i.e. 100 locust coolies to have 100 spraying machines, beside a great deal of supervision by officers trained conductors, Mandors and watchmen must be exercised, further to carry out spraying large quantities of chemicals are wanted and much time is occupied by investigating compensation claims made on account of death of bullocks etc, due to the consumption by them of grass etc growing upon the sprayed (poisoned) areas.

Spraying. On the occasion I have seen spraying done in Negri Sembilah - I have seen no spraying elsewhere - I have noted it is a work involving such numerous precautions to prevent danger to the native population and animal life by contamination of the water supply, streams, that I am convinced each gang of sprayers for Malacca of necessity require supervision by an officer until the time each gang becomes thoroughly conversant with the many precautions found necessary in the Federated Malay States: such precautions being equally necessary (if not necessary to a greater extent in the thickly populated and extensively cultivated territory than in somewhat undeveloped-agriculturally-and sparsely populated Negri Sembilan) for adoption here in connection with spraying: then to avoid carelessness in carrying out these precautions supervision by reliable conductors (essentially one to each gang) will still be required, i.e. ten gangs at initiation of spraying to require the supervision of ten officers.

One officer, during initiation stage, under whom are first class conductors, might if imperative because of shortage of officers keep an eye on two gangs during a day, providing two gangs work in close each other. Gangs will time after time work at distance of 30 to 40 miles apart, in such cases the possibility of one officer giving attention to more than a single gang in one day is eliminated.

These are my views.

B8.1/16

3d. P. C. C. B.

14-10-15



Department of Agriculture  
Federated Malay States

Kuala Lumpur, 17th Sept. 1915

Estimate of the Expenditure for Destroying Locusts in the lalang  
land in the Malacca, Negri Sembilan Johore Boundaries.

Sir,

I have the honour to submit herewith an estimate, as described above, in reply to your minute of 2-2-15. This estimate is based on experience obtained in the Federated Malay States but is only approximate, because I have no first hand knowledge of the conditions obtaining or the number of swarms present ~~on~~ the Malacca side of the boundary. I have assumed, however, that the nature of the country, the proportionate number of swarms present and the labour conditions are similar to those occurring in the lalang country of the Tapin district.

2. The estimate is based on the assumption that 100 spraying machines will be sufficient in addition to the 24 used last season on the Negri Sembilan boundary. The 100 sprayers require 100 coolies to use them and I think these could conveniently be divided into 8 gangs. Each gang requires 2 mixing coolies of whom one should be the head coolie of the gang. Eight conductors or Mandors are also necessary and one additional European under whose control ~~MMM~~ probably about 6 of these gangs will be placed. The remainder will be under the supervision of the Federated Malay States Officer working in the vicinity of the boundary which he will not be required to consider. The positions of conductors and Mandors can be filled by trained men from the Federated Malay States whose salaries are estimated at the amounts of which they are or have recently been in receipt. Some trained coolies from Tapin might also be available at the rate put down in the estimate.



3. An examination of the records of destruction work in the Tampin district and in Johore shows that about 170 days work per year have been necessary. The generations of locusts in Malacca, while they may not absolutely coincide with those in the above mentioned places will not present more working days for the destruction of the hoppers.

4. In order to keep trace of the swarms while the insects are flying and in order to locate breeding grounds promptly, so that the hoppers may be poisoned immediately they hatch, it is desirable that about 20 scout coolies be employed for the remaining 143 days which completes the 313 working days of the year. It has been found by local experience that greater efficiency is obtained through the employment of these men and at the same time a saving is effected in the cost of destruction which more than provides their wages: in addition the payment of rewards is obviated.

#### ESTIMATE

##### Salaries and allowances.

1 European officer per month \$200 .....	\$ 2,400-00
1 Motor cycle allowance at \$30 per mensem .....	360-00
1 Consolidated allowance at \$30 ..	360-00
<hr/>	
Total per annum	\$ 3,120-00
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##### Labour Force

##### Three Conductors:-

Two at \$35 per mensem each .....	840-00
one at \$20 ..	240-00
Three bicycle allowance at \$10 each .....	360-00
Five Manders .....	one @ \$1-25 p.d. 456-25
Three at 70 cts. per day .....	766-50
One at 60 cts. per day .....	219-00



Contingencies .....\$196-45

Grant Total \$28,000

6. The work in Malacca will not, of course require the initiation of destruction work on new lines, but merely the extension into that territory of those methods employed with success in the Federated Malay States and Johore. The exact procedure and the amount of supervision desirable here have been determined by experience but for work in Malacca the strength of the labour force is a matter on which I hesitate to give an opinion and this is the factor which must necessarily govern the estimate.

I have etc

sd. F.W.Scott

Chief Agricultural Inspector  
F.M.S.

The Director of Agriculture

F.M.S.



Brought forward.....\$2,381-75

Coolies

8 head coolies at 55 cts per day for 170 days . 748-00

108 coolies at 40 cents per day for 170 days .....7,344-00

20 scouting coolies at 40 cts. per day for 143 days. 1,144-00

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\$12,117-75

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Materials Transport etc.

Poison

10 cwt. arsenite of soda per week for 29 weeks at \$15-50 \$4,495-00

Sugar

12 piculs per week for 29 weeks at \$10 ..... 3,480-00

Transport at \$10 per week for 29 weeks ..... 290

.. at \$2 per week for scouts for 23 weeks ..... 46

Housing at \$10 per month for 7 months .... 70

Apparatus:-

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\$8,381-00

Sheeting

56 Sheets of 15 yards each at \$15 per sheet 840-00

Iron supports 224 at 20 cts. each ..... 44-80

Sprayers

100 "four caks" sprayer at \$27-50 each ..... 2,750-00

Spare parts and repairs to above ..... 250-00

Warning notices

250 large size at \$1 each ..... 250-00

500 Small size at 30 cts. each ..... 150-00

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\$4,234-80



Office of Director of Agriculture  
Federated Malay States

No. 24 in 1414/1913

Kuala Lumpur 22nd July 1914

Sir,

With reference to your letter No. 11 in 12567/13 I have the honour to submit proposals for dealing with locusts in Malacca and an estimate of such expenditure as would appear to be in conformity with the conditions laid down there.

2. You will note that provision is made for a European Special Assistant. This in my opinion is absolutely essential if the work in Malacca is to be carried out efficiently as in Negri Sembilan. The Assistant Agricultural Inspector will be quite unable personally to supervise the work in Malacca constantly and unless someone responsible is in charge daily the probability is that a great part of the work will be wasted. The Assistant Agricultural Inspector will only be able to pay occasional visits to direct the work.

3. I would like to point out that the division of the locust force into two parties unable to work in each other's territory is not the most effective from the point of view of locust destruction.

4. I have assumed that the Federated Malay States will supply apparatus and materials.

The Under Secretary

Federated Malay States

Kuala Lumpur



5. On the above lines the following is the minimum estimate for an effective year's campaign in Malacca:-

One Special Assistant @ \$200 per mensem .	\$2,400-00
Commuted Allowance \$30 per mensem ..	360-00
Motor Cycle Allowance \$.....	360-00
One Motor Cycle .....	300-00
3 Mandors @ \$30 per mensem .....	2,820-00
3 Bicycle allowance @ \$10 .....	960-00
30 coolies per (25 days per mensem)	12,000-00
Incidentals (cart hire, crude oil &c) ....	740-00

Total                      20,000-00

6. Should the above estimate be passed I would ask what arrangements will be made for the accounts.

I have etc

(sd). L. Loxton-Brain



No Minutes should be written on this page. A separate half-sheet  
to be used if required.

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B8.1/22

2





Received 24.1.16

21.1.16

Answered.....

Dear Burkhart

I have  
managed to board  
Pratt up & fasten.

As regards areas of  
battang walls on one  
side & on the other side  
have you formed any  
opinion? I should  
say upon Semblan  
had 3 or 4 times

28.1.23



as much as we have.  
In the papers L. Train  
wanted money to  
pay \$20,000. This  
is too much. Mitchell  
proposed \$5000,  
too little I think.

\$7000 & \$10,000 is  
my idea - But



Botanic Gardens,

Singapore,

24th. January, 1916

Dear Mr. Welferstan,

I did not know that Michell had put down \$5,000 as the sum which might reasonably be paid to the F.M.S. Department of Agriculture for locust-destruction; but I imagine that he would now put it at a higher rate for in 1915 the vote with its extensions amounted to \$10,200.

Gowley-Brown would not waste any of it; and we may well say that one good officer supervising whole time can carry out work amounting to that in value. The amount includes Gowley-Brown salary. In addition to <sup>\$10200</sup> that, the Government spent a little in my time and travelling expenses, which as I trusted Gowley-Brown completely, did not amount to much.

Now supposing that the F.M.S. should send us an officer capable of getting through as much as Gowley-Brown, a fitting reward for then would be \$10,200 plus the cost of the time and travelling of the Agricultural Inspector who supervises that officer say \$500. Therefore \$10,700 will be a reasonable reward.

But I do not like the proposal exactly as it stands. What I should prefer is that the F.M.S. should receive only the reward for the time and travelling of the Agricultural Inspector, while the Colony pays its own bills for the executive officer and the labour. What I should like best of all is



the Tanpin man should be handed over or lent, the Negri Sembilan Agricultural Inspector interesting his work.

You must remember this:- that the F.M.S. Department have long been in the habit of saying that the locusts come out of Malacca, whereas they work backwards and forwards over the frontier; and that on Lewten-Brain's own confession he did not know the state of things in Malacca. Therefore he sat down and asked for so much as would enable him to effect something supposing the locusts really were as bad as his subordinates would have him believe. He made a safe estimate. Will you ever get the F.M.S. Department to do otherwise? Therefore I say meet your own bills as they come in; and if the locusts should happen to gain on you prepare to spend more; or if they are dropping out, save.

Now as regards the extent of lallang wastes, they are three times as wide in Negri Sembilan, I think, than in Malacca, while the state is about four times as big. And there is only a very small part (if any) where poisoning methods will not ~~kill~~ kill buffaloes; and the somewhat more expensive bag-trapping has to be resorted to. So that the Malacca expenses are higher per acre of the less extensive lallang. At the same time the country is sufficiently densely populated and the organisation excellent for information of swarms to be brought in without recourse to the rather lavish rewards given in the F.M.S. ~~ness of the~~

The lavish rewards and the \$25,000 asked for by Lewten-Brain set me against the F.M.S. Department of Agriculture doing the work; and I think that to some degree the department rather hoped to be able to keep



on having the chance of saying that they could never make an end of the business while Malacca prevented them.

I am glad that you have sent Pratt to Jasin. I suggest that he should be sent there as the locusts were not breeding at all in Alor Gajah. He is of little use.

I expect to get away on Thursday next, and will go to Tampin, whence I will come into Malacca on Friday morning, if after seeing you I find out that Pratt is really a dead horse, I will not spend the time on doing much flogging.

I think that I shall hardly be able to make use of your permission to go to the Cottage.

I have not forgotten your request for artichokes but there have been none in the market recently.

Yours sincerely



6' June 7

By Vicinity  
Seymour



O.A.B.



Colonial Secretary's Office,

Singapore, 8<sup>th</sup> March, 1916.

Telegraphic Address:—  
"SECRETARY, SINGAPORE."

It is requested that the following number be quoted in the reply to this letter.

MALAYAN 7843/15.


Sir,

With reference to your minute of the 19th January, 1916, on Colonial Secretary's Office correspondence No.7843/15, I am directed to forward for your information the enclosed copies of a letter from the Under Secretary, Federated Malay States, and of my reply, on the subject of locust destruction in Malacca.

I have the honour to be,

Sir,

Your obedient servant,

  
Ag:Colonial Secretary,  
Straits Settlements.

The Director of Gardens,

S I N G A P O R E.



COLONIAL SECRETARY'S OFFICE,  
SINGAPORE, 2nd March, 1916.

Malayan 7843/15.

Sir,

In reply to your letter 5 in 6327/1915 of the 7th February relating to locust destruction in Malacca, I am directed to inform you that this Government agrees to the proposals contained in the memorandum prepared by the Director of Agriculture, Federated Malay States, and that a vote of \$20,000 will be taken to cover the estimated expenditure.

I have the honour to be,

Sir,

Your obedient servant,

(Sd). W. George Maxwell,

Ag: Colonial Secretary,  
Straits Settlements.

The Under Secretary,

Federated Malay States,

K U A L A L U M P U R.

B8-1/29



KUALA LUMPUR,

FEDERATED MALAY STATES.

No.

7th February, 1916.

5 in 6327/1915.

Sir,

Referring to your letter No. 7843/15 of the 12th January, 1916, on the subject of the task of locust destruction in Malacca, I am directed to forward herewith for your consideration a copy of memorandum prepared by the Director of Agriculture, and to say that if you agree to the proposals contained therein, the Director of Agriculture, will be asked to settle details with the Resident, Malacca.

I have the honour to be,

Sir,

Your obedient servant,

(Sd) W. H. Mackray,

for Under Secretary, F.M.S.

The Honourable,

The Colonial Secretary,

Straits Settlements,

Singapore.



Memorandum.

I propose that the whole Expenditure for locust destruction in the F.M.S., the Colony and Johore for the current year should ultimately be divided between the different Governments in the following proportions:- F.M.S. one half, Colony one quarter, and Johore one quarter, with the proviso that the contributions of the Colony and Johore should be limited to a maximum of \$20,000 each.

The expenditure should be met in the first instance by advances for the purpose to the Department of Agriculture. These advances would be adjusted at the end of the year and the final allocation of the liabilities made in accordance with the actual expenditure incurred.

There is provision in the F.M.S. Estimates for an expenditure of \$50,000 and the Johore Government have undertaken to make a contribution of \$20,000. What is asked of the Colony is that they should be prepared to make advances to the Department of Agriculture up to a maximum of \$20,000 which would eventually be adjusted in the proportionate manner suggested above. An advance of \$15,000 would be asked for in the first instance.

If this arrangement is approved (and I understand from the Resident Malacca that he regards it as equitable) this department will accept initial responsibility for all expenditure already incurred in Malacca in respect of the current year, and will take steps at the earliest possible opportunity to take over the locust destruction work in Malacca.

I hope that the work will not be subjected to the handicap of any hard and fast prohibition of the use of poison, it being understood that this method will not be used except by trained and experienced men and under adequate supervision. The continued absolute prohibition of the use of poison in Malacca territory would add considerably to the difficulty and expense of dealing with this problem.

(Sd). E.S.Hose.

Ag: Director of Agriculture.

29th January,

B81/31

1916.







Gardner

7296/1915

(G. 3.)

From Whom ....

S. g. g.

Place ....

S.

Date ....

29.11.15.

Appointment of a Special Assistant  
in local district, Malacca, vice  
Mr. Cowley, B.M. (transferred).

Former Papers.

MINUTES.

Final Paper.

R. M.

For your observation

Ed. R. J. W. 30.11

S.

I kept this back until W. Burkill came here.

W. Pratt can be tried, in fact there is no choice at present, but it is a great drawback that he knows no Malay. I have told him that he must learn at once enough to get on with.

He is, I understand, to get the same pay (\$200 p.m.) and allowance (\$50) as W. Cowley-Brown and as he was engaged in Singapore his expenses to Malacca should be paid. No warrant will be required. He does not ride a Motor bicycle, but a side car, if approved, could be cheaply acquired & fixed to it and he has a man who can ride the motor bicycle.

B8.1/33

Ed. R. J. W. 30.11.15



J. G.

approved

Ad R. J. H. 16.12

C. S.

Noted

I have started Mr. Pratt in his work  
from Dec 1st and intend to inspect  
it in January.

Ad J. C. B. 21.12.15

21.12.15

D. of gardens

I return this  
paper which I found  
in my box.

Ad R.

23.12.15.



Sir,

I have the honour to inform you that you have been appointed Special Assistant for District - District in Malacca. Retention in the post depends, inter alia, on your learning <sup>quickly</sup> Malay for your work.

Your pay is ~~at the rate of~~ two hundred dollars <sup>(\$200)</sup> per mensem; and you will receive thirty dollars <sup>(\$30)</sup> per mensem commuted travelling allowance, and thirty dollars <sup>(\$30)</sup> per mensem cycle allowance.

I have etc.

Mrs

A. W. H. Hall.

with effect from December 1st last



B8.1/35



17/12/15

Dear Burkill,

I have received your letter about H. O'Brien. I think he would be an excellent man to take on if two men are necessary. At present he can be kept in view in case Mr. Pratt is not a success. I am quite prepared to take on two men & make a big effort to absolutely



do away with the  
counts of the C.S.  
again.

I will leave your  
letter for Wolferstan  
to see saying that  
I agree with it.

I note about Mr.  
Pratt repaying half  
the advances this  
month & the other

half next month &  
I will leave word  
with Wolferstan about  
it.

Yours sincerely,  
W. Churchill  
P.S. I presume C.S.  
approves Mr. Pratt.  
I have had no word  
from Li.



15th December, 1915

Dear Michell,

*\$60 for  
S. J. J.  
\$20 for  
Michell*

I suggested to Pratt yesterday that his advance should be paid back in two months, and he agreed. If there should be any reason for altering it to three months that can be considered later.

I met O'Brien at dinner at Hampin; and he asked me quietly if there would be any opening for him in Malacca, saying that he ~~was~~ is the junior assistant for locust destruction over the border and might expect to be the first squeezed out. I told him that there is a chance, and that I would bear him in mind, as well as tell you.

If you want two men for locust destruction, I think that O'Brien would serve us satisfactorily.

At the present moment there is hardly work enough to justify putting him in; nor is he in a hurry for a rest. But a couple of months hence the work may be heavy.

You have proposed two men. The proposal might now go a little further. We could have both O'Brien and Pratt at work for a time, make a big effort to stifle down the locusts, and if successful reduce to one European (O'Brien probably) when we are no longer justified. The arrangement would insure us against being left hanging by finding Pratt useful.



It would suit my best best to know that when  
required I could engage O'Brien.

If you approve I will ask the U.S. Department  
of Agriculture, about sparing him.

Sincerely yours,

*John*



28th November, 1915

Dear Mr. Pratt,

I have authority to ask you to take up the duties of special Assistant for beoust bestruction, Malacca, at the earliest possible date. Your letter of appointment will follow. It is probable that it will contain the condition that you must learn conversational Malay in the least possible time up to a standard sufficient for your work.

In order to commence work, you must report yourself at the office of the Resident, Malacca, and receive from him charge of the catching apparatus etc.

You will take orders from him, but be subject to inspection from me. I am writing to him to inform him that you will report yourself to him.

There is a boat leaving for Malacca tomorrow, the Lady Wold, by which you could travel.

Yours faithfully,



Director of Gardens, S.O.

A.W.R. Pratt Esq

Beustead Institution

B8.1/37



A. W. H. Pratt

Subinspector in the Jamaica Constabulary  
from Oct. 8th., 1893 to Dec. 1899  
wounded in a riot in 1894, and commended by  
Sir Henry Blake, then Governor  
invalided with a gratuity.

Clerk in Indulgence Cables Office for some  
months, at Cape Town, left on reduction of  
establishment with a good character.

Out door Customs officer, Cape Town from Jan. to  
the end of July, and left on reduction of  
staff with a good character.

Taken on in the Bechuanaland Protectorate Police, but  
found to be too tall and heavy for the mounted  
service; therefore his services were dispensed  
with in November, and a permanent clerk's return  
in whose place he seems to have worked.

On the Negerie Railway extension from March 26th to  
July 15th as a temporary overseer, and left  
with a satisfactory report, which explains that  
he was honest and straightforward and hard working  
but handicapped by having had no previous experience

Store keeper with Messrs. Mr. Gordon Grazer and Co.  
Colonie for six months, and left owing to illness  
1st. October, 1916

Acting Sergeant Major in the Ceylon Police from  
April to December, 1907, left at his own request

Age will be 46. born at Sandwich, Kent.



29th. November, 1915

APPOINTMENT OF A SPECIAL ASSISTANT FOR LOCUST-  
DESTRUCTION, MALACCA, vice Mr. Seylor-Brown transferred.

Sir,

I have the honour to put before you the name  
of Mr. Albert William Henry Pratt, for appointment as  
temporary special Assistant for locust destruction, Malacca.

Mr. Pratt is not the man who I would have chosen,  
had there been any choice; but there is none at  
present. He has but the smallest knowledge of Malay;  
and I suggest that his appointment should be subject  
to his learning the language sufficiently for his work  
at a rapid rate, and satisfying the Resident, Malacca,  
that he is doing so.

I enclosed a medical certificate and details of  
his career. I have seen many certificates that he has,  
and am satisfied from them that he is honest and  
steady, two qualities of the first importance.

I have the honour to be, Sir,

Your obedient servant,

*JMS*

Director of gardens, S.S.

The Honourable  
the Colonial Secretary,

Singapore,

B8.1/39



A. W. H. Pratt 1892-1893 16 months in P.W.D. Jamaica.

1893  
-1899 Subinspector in the Jamaica Constabulary from Oct. 8th, 1893 to Dec. 1899 wounded in a riot in 1894, and commended by Sir Henry Blake, then Governor invalided with a gratuity.

1901  
-402 Clerk in Indulgence Office for some months, at Cape Town, left on reduction of establishment with a good character.

403 Clerk under Paymaster, Rhodesia Field Force

1905 Out door Customs officer, Cape Town from Jan. to the end of July, and left on reduction of staff with a good character.

405 Taken on in the Bechuanaland Protectorate Police, but found to be too tall and heavy for the mounted service; therefore his services were dispensed with in November, and a permanent clerk's return in whose place he seems to have worked.

1908  
-1910

On the Mogenbo Railway extension from March 20th to July 15th as a temporary <sup>and afterwards in various capacities 2 years</sup> overseer, and left with a satisfactory report which explains that

he was honest and straightforward and hard working but handicapped by having had no previous experience

1910

Store keeper with Messrs. Mr Gordon Fraser and Co. Colombo for six months, and left owing to illness 1st October, 1910

407

Acting Sergeant Major in the Ceylon Police from April to December, 1907, left at his own request

Age will be 46, born at Sandwich, Kent

1911 Store Keeper on the railway (Locomotive Workshop) 8 months - until post given up -

408 on a rubber estate

1914 ~~in~~ Ceylon Quarantine & Immigration camp Manager or Assistant Superintendent.

1915



32

(3 20)

Received 24.11.15

MEMORANDUM.

From

To

23/11/1915.

Dear Sir,

I enclose <sup>copy of</sup> the accounts I got early from <sup>you</sup> for the first before 6 left.

10th with extensions a 410,300, which will be approximately all spent.

I am afraid it will be somewhat difficult if the new man cannot ride a motor cycle.

~~One of the best men~~

The man or perhaps two men should be sent up at once, as otherwise the planters will all be calling out, although they promised (or rather said) to get us a man.

B8.1/41



Copy.

R. M.,

The vote and present extensions are ... \$10,200-00

The expenditure as at 31st October was ... 7,816-80

The cash in hand as at 1st November was ... \$2,383-20

There are 8 scouts at 14/- per  
month i.e. Scouts, November and

December salaries ... \$224-00

Two scouts receive an allow-  
ance of 5/- each p. m., i.e.

Scouts November and December

Allowances ... 20-00

Inspector's salary and allowance

for 9 days ... 78-00

The new Inspector salary and allow-  
ance for Nov. and Dec. may be taken

as Nov. \$160, Dec. \$260 ... 420-00

The Locust coolies daily pay for

9 days may be taken as 576 coolies

at 40 cents ... 230-00

\$972-40

From 10th November to 31st December 1915

for Locust Coolies Daily pay, Transport

Expenses, repairing trap-bags etc the

amount of cash in hand is roughly ..... \$1,410-80

I make no allowance for new trap-bags.

Sd. P. C. C-B.,

9-11-15.



No Minutes should be written on this page. A separate half-sheet  
to be used if required.

---



187

(G. 3.)

14

N. States

From Whom ....

U. S. to Govt

Place ....

K. Lumpner

Date ....

(2 in 125-07.13)

S. I. 14.

Occurrences of Locusts Along the boundary  
between Malacca & the Tanjore District of Negri  
Sembilan.

Enquire whether steps will be taken by  
the Col. Govt to co-operate in the Campaign  
against the

Former Papers.

MINUTES.

Final Paper.

C.S.

Doff.

For your observation.

9.1. " R. J. W.

C.S.

Action in Malacca shd go hand in hand  
with action in the adjoining part of N.  
Sembilan.

on p. 8 of the agl. Bulletin Nov.  
Nov: 13. The Chief Agricultural Inspector  
expresses a hope of having spare apparatus  
within 6 weeks of Oct 15<sup>th</sup> when he wrote.  
I suggest that the Ins. shd be asked if they can  
allow a Colonial Subordinate with duties in  
Suffolk to be sent to



C.S.

Warrant here with  
15.2.14 J.M.K.

is taking action with the  
Resident, N.S.

E.B.M. 5.6.14

R.M. For report

R.J.W. 5.6.14

2/5.

Submitted for signature  
17.2. R.J.W.

A.Y.

18. Feb 14

Treasurer

Please register

C.M. 19.2.14

C.S.

Registers sent here with  
to the Audit office

J.M.K. 20.2.14

C.S.

Warrant retained

Resident, Malacca,

D of G. To See

E.B.M., 23.5.14

C.S. Seen

L.C.P.W. 25.2.14

C.S. Seen

I.H.B. 11.5.14

(5) Letter from U.S. dated 28.5.14

C.S.

This paper was incorrectly filed

before the F.M.S. had been informed what

what action was proposed, but  
presumably the R.M. is

8.5.14

As soon as the vote of \$500 was authorised I communicated with the Asst. Agricultural Inspector in N.S. and interviewed him on 24.2. I arranged after discussing the matter with him that it would be best to try to obtain a loan of the services of three F.M.S. Malay handors with knowledge of locust work to come to Malacca and locate swarms. I arranged that he apply to the D. of A.

2. I waited till 20.3 and hearing nothing wrote to the D. of A. After one reminder, the D. of A. wrote on 24.4. that the handors could not be spared.

3. We have no special department here and no plethora of officers to put to work of this kind. With difficulty I had a trap made. As soon as I found that the F.M.S. could not help

I authorised the engagement of two local Malays in Alor Gajah and since 1.6. two more have been



engaged. I have also borrowed two more traps from the D.of A. and sent them to Alor Gajah. The D.O. will do what he can, but he has already more work than he can manage.

4. Malacca and N.S. are geographically one. The simplest and most effective plan is for the Colony to ask the N.S. locust staff to deal with Malacca and pay for the work. I believe very large ~~MMMMM~~ sums are being spent in the F.M.S. I have also great doubt as to whether the locust danger is anything like as serious as the Agricultural Department F.M.S. represent.

5. The alternative is to detail an officer from the Gardens' Department to come to Malacca, organise a staff, and of course spend a good deal of money.

6. The D.O.A.G. tells me that so far the people have ~~MMMM~~ in some mukims of Alor Gajah have given assistance and a good number of tins of locusts have been brought for reward. On the railway line towards Tebong and Batang Malaka they are very lazy and will not help.

7. The reports I receive are that the N.S. side has far more locusts than ours, namely I presume, because of the large stretches of Balang.

L.C.P.W. 6.6.14

R.J.W. 13.6.

(4) To U.S. F.M.S. 16.6.14

R.M., To see. S.Mc.A. 17.6.14

C.S. Seen. W.C.M. 18.6.

D.of G.

To see.

S.Mc. A.

C.S.



Sheet 4

help. Joint action with the F.M.S. is what I still recommend and that the Department of Agriculture, F.M.S. be asked to direct operations for a fixed period chiefly through the border land north of Alor Gajah.

If the D.of A. were asked (8) if he will accept the direction for two months and (88) what in men and money he will require, the case will be forwarded by his answer, and the necessary funds can be discussed.

I am strongly of opinion that something should be done for the sake of the growers of rice and coconuts; and I think that the granting of \$500 without direction was playing with the case.

I.H.B. 22.6.14

P.S. The recently reported invasion of Johore by locusts introduces a third party. The D.of A. might be asked through his Government how the situation is affected by it. I.H.B. 22.6.14

Y.E.

I agree with the R.M. and the D.of G. that the best way of dealing with the locusts is to ask the F.M.S. to send part of its locust extermination staff to Malacca and to take all necessary measures at the expense of the colony. The configuration of the country renders this easy for the is an artificial one.

W.G.M. 24.6.14

G.S. Will you please ask the D.of G. to come to see me with you. R.J.W. 25.6.14

D.of G. Will Saturday morning 10 a.m. at Govt. House suit you? W.G.M.

G.S. Spoken. The D.of G. will proceed to Malacca and report after making provisional arrangements for

PS. 1/17



carrying on the work of locust destruction

R.J.W. 26.6.

D.of G.,

No note and return early please.

W.G.M. 26.6.14

C.S. Noted

I.H.B. 27.6.14

R.M. For your information W.G.M. 30.6.14

C.S. Seen W.C.M. 2.7.14

(5) Letter from R.M. dated 15.7.14

(6) Letter from D.of G. 18.7.14

C.S.

Please telephone to D.of G., and ask him to send a copy of this report direct to R.M. at an early opportunity W.G.M. 21.7.14

C.S. I have telephoned as directed. E.B.M. 22.7.14

Y.E.

Please see (5) the M.P.A. ask if Y.E. will receive a deputation

With regard to (6) it seems that the provisional arrangements for destroying locusts are hardly adequate. The appointment of a locust destroyer in Malacca town and of his two locust scouts in Alor Gajah and Jasin, with procedure for reports and direction is what it amounts to. It is rather like sending out a boy to do a man's work.

The possibility of the presence of the locust destroyer being required in two places simultaneously does not seem to have been contemplated.

The proposal to do away with all Malacca wastes seems



hardly practicable. But the Conservator of Forests might  
be asked to report. W.G.M. 24.7.14

C.S. Herewith a draft. R.J.W. 25.7.

Signed W.G.M.

(7) to Resident Malacca 28. 7.14

Another paper went to the D. of G. today about locusts-  
destroying Wait until it is returned. W.G.M. 29.7.14



7

~~Enclosure 5~~

To Resident Malacca.

I am directed by the C.A.G. to request you to inform the Secretaries of the M.P.A. that H.E. will be glad to receive a deputation from them at any time either in Singapore on the 30th. July 1st. August or 2nd. August, or in Kuala Lumpur after that date, if the Deputation will inform him in advance of the date of their coming.

2. In the meantime they will be interested to know that the D. of A. has been approached both directly and by instructions from the High Commissioner through the chief Secretary and Under Secretary. The Director has also been informed that the Straits Settlements Government and the Johore Government would be quite willing to pay the salaries of the locust destroyers employed on their sides of the frontier and would agree to those destroyers being placed under the general direction of the agricultural authorities in the F.M.S. To these proposals no reply has yet been received.

3. H.E. trusts that the M.P.A. will see that it has been seriously misinformed as to the attitude of the Colonial Government in the matter.



12th JULY, 1914

Regarding Lemnons in Malacca

Sir,

As Antiquarian, (File Relative Number 127/14), I have the honour to forward to you a report upon Lemnons in Malacca.

The successive points that I try to make in the report are:-

1. that the Lemnon is apparently Eusyllium migrator-  
oides and not E. daniels as at first reported; *but* that  
whichever it is, it is a very widely distributed species  
of the old world known to do considerable harm even in  
great numbers; and may not have had far to travel to  
reach its first (and certainly recent) location in the Malay  
Peninsula:

2. that it is reproducing broods at the rate of four  
to the year, and in spite of attempts made to suppress  
it, is increasing in numbers in the Malacca-Selangor  
region:

3. that as long as increase is going on, we must  
be apprehensive of damage in the future, although that  
done hitherto is little:



4. that the connection of the locusts with the falling wastes of the country in which <sup>they are</sup> ~~the~~ is close; and that as the falling wastes are only maintained by repeated firing, it is within our power by protecting the wastes from fires to narrow the opportunities for increase which the locusts have, although outside the falling wastes there are so many corners where the locusts eggs may be laid, that there is not a corner where much breeding is impossible:

5. that the destruction of swarms by means of traps should be continued.

On pages 11-14 of the report, I state the provisional arrangements for the destruction of the locusts that have been made in Malacca.

In conclusion I should like to urge strongly that the question of giving fire-protection to the falling wastes in Malacca and in Negri Sembilan should receive consideration.

I have the honour to be, Sir,

Your obedient servant,



Director of Gardens, S.S.



REPORT ON LOCUST-DESTRUCTION IN  
MALACCA TERRITORY.

To obtain a determination of the locust which has been establishing itself in the Malay Peninsula during the past two years, the Department of Agriculture, F.M.S., sent specimens in the first instance to the Indian Museum, Calcutta, and received back the reply that the insect is Pachytelus danicus, Linn. (Locusta danica or Pachytelus cinerascens, Fabr.). At a later date specimens were sent to the British Museum of Natural History, South Kensington, and thence the reply was received that it is not P. danicus. Again specimens were sent to the Department of Agriculture, at Manila, and thence it was reported that the insect is identical with that which causes damage in the Philippine Islands and is believed to be Pachytelus migratoricoides, Reiche.

The above information has been placed kindly at my disposal by Mr. H.C. Pratt, the Entomologist to the Department of Agriculture, F.M.S.; but he himself is unwilling to give a name to the insect.

From La Sauer's paper on African locusts in the Zeitschrift für Tropenpflanzen, XI. no. 2, 1910, I identify the Malacca insect with what that authority calls P. migratoricoides; and as his figures confirm the determination received from the Philippine Islands, there is good reason for expecting that this name will be corroborated by the authorities at South Kensington, to whom Mr. Pratt is sending ample material.



Ps. migratoricoides is the chief wandering locust of Tropical Africa: it multiplies in the grass-lands towards Lake Chad, and the swarms invade the country towards the coast, much of which is in the great Forest Belt of West Africa: it has been recorded as occurring in Angola: it occurs on the eastern side of Africa from Abyssinia to Nyasaland, and is the species which wanders at times in great swarms in German East Africa: in Madagascar it is common: it is recorded as occurring in India, Timor, China, Australia, and New Zealand: it is apparently the most troublesome locust of the Philippine Islands.

P. senilis, the locust which the Government of India's officer in Calcutta stated the Malayan insect to be, is the chief locust of the Mediterranean, whence it at times invades the countries northwards, e.g. it was the invading locust of Germany from 1875 to 1876: it is found in Madagascar, Mauritius, and the Comore Islands: it spreads from the south of Europe along the same latitudes through Asia, extending northwards to Japan: it is found in Australia and in New Zealand.

From its distribution it will be seen that it is hardly of less extensive range than is Ps. migratoricoides.

Very similar to both these closely allied insects is the Brown Locust of South Africa (Pachytillus sulcirostris, Stal. or P. senilis or Locusta pardalina), which multiplies enormously in the Kalahari desert and throws its swarms on all parts of British South Africa at frequent intervals.



Each of these three species under certain little ~~understood~~ <sup>understood</sup> circumstances forms invading swarms; and otherwise they are so similar that lessons learned from one may be applied in the case of another. However ~~the~~ taking on of the migrating swarm condition, ~~=~~ may be regarded as promoted by the numbers of the insects which find themselves together, and it may be stated that these numbers are rarely if ever reached unless the insects have open grassy land in which to propagate. It is probable, seeing that everything insectivorous feeds on locusts when the chance comes, that their great multiplication in grassy lands is due to the relative scarcity there of the forms of life which suppress their numbers in other more favourable spots.

This connection of swarming with grass lands is important, and one of my suggestions for dealing with the pest ~~is based on it.~~ is based on it.

The species of *Pachytillus* lay their eggs, as do locusts generally, in loose soil, often in slightly damp soil, but it must be above all sunny. Although the winged swarms may feed in forests, they seek open places for breeding. The eggs lie in the soil for an uncertain period, not hatching if too dry, and have been known to rest for three and a half years. A suitable degree of moisture brings about the emergence of the hoppers; and in localities where rain may be delayed, the hatching of the young awaits its coming.

All the species of *Pachytillus* have a preference for grasses as food, but eat readily, almost indifferently



sedges and palms, as well as a few leguminous plants. When in big swarms they extend their depredations even to plants which poison them.

The daily flight of a moving swarm of Pachystilus plagiatoricoides has been recorded in the Philippine islands as 10 miles; and Mr. Pratt states that the flight of the locust in the Malay Peninsula will not exceed 25 miles. This distance travelled day after day brings lands far from the breeding place within reach of invasion. Locust regions are in literature classed into (i) those where year by year they breed—"permanent regions," (ii) those where after an invasion they breed for some years and then from natural causes leave their ground—"permissive regions," and (iii) those near enough to either of the former to be subject to invasion, but not affording breeding ground for the invading swarms (probably a question of the number of enemies).

The history of the locust in the Malayan peninsula has been as follows. It first attracted attention in February, 1912, in the neighbourhood of Port Dickson.

History of the present outbreak.

Whence it came, is not known; but so widely distributed is Pachystilus plagiatoricoides (and P. daniels also) that the eggs may have been brought in soil from several neighbouring countries or it is conceivable that the winged insects reached the Peninsula, although <sup>the species</sup> ~~it~~ is reported unknown in Sumatra. Messrs. Pratt and South of the Department of Agriculture, F.M.S., who were sent to investigate it, found the eggs to hatch in 13-14 days, and the insects to run through <sup>their</sup> five moults as a hopper in 24-29 days; whereafter, they, said, <sup>they were</sup> on the wing for



three months, more or less, <sup>during which they become</sup> ~~sexually~~ mature, and after ~~breeding~~ <sup>they</sup> die. These data subsequent

observation modifies thus:- the period in the egg has a wider limit, but how near 15 days is to its minimum is not known to me: the period after the last moult to sexual maturity is <sup>much</sup> certainly less than three months, and

Mr. Pratt in a recent letter to me says that insects <sup>life on the wing seems to</sup> have its limit at about <sup>two</sup> months, which he has in captivity copulated after nineteen days,

but no egg-laying followed. Both in his opinion and from my observations of the times at which hoppers have appeared, we fix the time from the last moult to egg-laying as a little over one month. There have been

four swarms in the year,- a serious rapidity, as in Europe, and North America locusts have done much damage when only reproducing once in the year. In 1903 there was a serious outbreak of the Bombay locust (*Acridium anacanthum*) in India carefully observed by Mr. H. Maxwell Levey, who found the generation to occupy the whole year.

When the locusts were first observed in the Negri-Sembilan, the several swarms bred synchronously, showing a common origin, and making it perfectly evident that the arrival in the country was recent. The swarms which subsequently appeared in Selangor maintained this characteristic of breeding synchronously (doubtless due to a fresh common origin); but in the Negri Sembilan their breeding time began to spread out: and now according to my observations there are seven weeks between the emergence of the first hoppers of a generation and the last.

and apparently after their sexual maturity lasts for some time comprising more than one egg laying.



The result of this spreading out is that in the current year there are hoppers <sup>emerging</sup> ~~1000000~~ over 22 weeks out of the 52, and as it takes four weeks for them to pass through the hopper-stage, there are hoppers abroad in ~~44~~ <sup>44</sup> weeks of the year. It seems probable that in 1915 there will be no interval when hoppers cannot be found.

From the neighbourhood of Port Dickson after February, 1912, the locusts soon spread to Seremban and into the Territory of Malacca: then they reached Kuala Lumpur and passed beyond northwards. In June, 1913, operations aiming at their destruction were commenced in the Negri Sembilan and soon afterwards in Selangor. In October, 1913, they were reported as being "practically all over" the Negri Sembilan. They are still all over the states, and from ~~Negri Sembilan~~ <sup>Kuan</sup> they have passed into Johor and into Malang.

Whereas the Department of Agriculture of the Federated Malay States seems to have ~~met~~ <sup>loosely</sup> with some success in destroying them, in the State of Selangor, this is not the case in the Negri Sembilan, where the swarms are increasing. It is implied in some of the reports issued that want of success is partly due to inaction in Malacca; but this is not proved: nor can it now be proved ~~that~~ <sup>rather</sup> that want of sympathetic action has <sup>caused</sup> an increase of the locusts in Negri Sembilan ~~than~~ that want of success in the Negri Sembilan has led to a greater infection of the Territory of Malacca: <sup>for</sup> ~~what is~~ <sup>chiefly happening now</sup> is a rushing out of swarms from the widest areas of grass lands, in all directions: and



- the scene of the longer operations.

the widest areas are in the Negri Sembilan. Swarms have been traced by Mr. Keane, the Extra-Assistant Inspector of Agriculture in Negri Sembilan, to the border of Johor near Senas, and I am informed that one swarm was observed crossing from the Jasin Subdivision of Malacca into Johor near the Bekok Estate. It may be assumed that they <sup>insects</sup> have deposited their eggs somewhere in the upper Muar ~~valley~~ valley or under Mount Ophir, for they were sexually ripe when they crossed the borders.

Three administrations are therefore interested in their increase or destruction:- the Straits Settlements (Malacca), the Federated Malay States (Negri Sembilan) and Johor. Unfortunately throughout Malacca Territory, through almost all the Negri Sembilan, and in contiguous Johor, there is not a making without corners of land, if not stretches, where the locusts <sup>- at least permissively -</sup> can breed. It is to be remembered that they want very little room for egg-deposition placing them if necessary very close, and even in such confined spaces as the walls between rice fields.

During the week ending July 11th, 1898, wherein I counted the swarms in Malacca Territory, they were present as fliers in the making of Johore, Marliman, Chinchin, Ayer Panas, Durian Tunggal, Machang, Balai Panjang, Machap, Sadek, Selang, Kemuning, and Ulu Matang Malaka. They were present as ~~hoppers~~ hoppers in the making of Kesang, Solandar, Machap, Chinchin, Ayer Panas, and Jasin. Since July 11th. Hoppers have been reported from either Tekong or Ulu Matang Malaka (two swarms). All the fliers observed were sexually ripe, <sup>and</sup> ~~generally~~ the swarms were full of <sup>individuals:</sup> ~~populating~~ <sup>therefore</sup> egg-laying in general now.



During the ten days recently spent in the examination of the swarms abroad in Malacca Territory and Southern Negri Sembilan, I searched for signs of disease among the insects such as might promise their destruction, but I found none. I observed hoppers in the first instar to be killed by two species of ants, - one the common *Keringas* and I know that various birds ~~of~~ prey ~~on~~ on the locusts at all stages: but the percentage so destroyed is very small. A white mite is present on the wings of old insects in the same position as a *Eriobidion* (red mite) ~~to~~ be found in Africa and India: but it does not kill the host. A fungus was seen between the wings on old fliers, but it appeared to be superficial. We are unfortunately familiar with the failures of recent attempts to kill locusts by means of a parasitic fungus and of a bacterium.

The amount of damage to crops so far done by locusts in Malacca has been very little. In 1912 and in 1915 damage to rice was reported from the Alor Gajah sub-division. This damage I did not see myself: ~~and therefore~~ but during my visit ~~recent~~ to Malacca, I ~~went to~~ every spot where damage of any kind was reported. I found winged locusts eating hill-rice and young seedlings in the Segatu mukim, eating rice in the head-hod in Kemuning, eating sugar-cane leaves in Machap and Kemuning, and eating beans in Machap. Except for this they were always seen eating grasses or sedges, ~~and~~ chiefly *Lepidoloma conjugatum*, a good fodder grass, and *Imperata arundinacea* - the lallang. The amount of the damage seen by me might amount to \$200: but the rice season

Damage  
done by  
locusts.



was only at its very commencement, and the chances of damage therefore few. Cultivators, I found, in dread of the locusts, and the best of them at the appearance of a swarm prepared fires by their crops to drive them off. I saw fliers feeding among ginger and rubber trees but only on the weeds among these and not at all on the crops. If pasture were a valuable asset in Malacca we should hear much of the damage done, <sup>but it is not.</sup> A few young rubber trees have been broken down by the weight of insects settled on them.

It is not on account of actual damage done, that measures against the locusts can be recommended; but upon the ground of possibilities.

Volkens (Der Kilimandscharo, p. 186) has described a swarm of locusts known to be Pachytillus migratorius because he collected specimens. "In the middle of April a journey was undertaken to the steppes of Kaim. Literally we waded up to our ankles in a brown moving mass, which was no more than the hoppers from the eggs of a swarm (seen earlier). Two weeks later this mass set itself in motion, using every path which led to the cultivated lands as a high road. Day by day from 9 o'clock in the morning to sundown the stream set towards the Kilimanjaro mountain, and it annihilated in an incredibly short space of time all the plantations of the natives to the very last leaf. A maize field in a single night was eaten up, so that the earth was bare in the morning"

Sander in his "WanderHessschrecken in unsonnen Afrikanischen Kolonien" records that the following crops were observed by him to be eaten by Pachytillus:—maize, oats, young barley, wheat and rye, fodder grasses;



soft leaves and twigs of potatoes, buckwheat, flax, and lentils when other things fail; cabbages, kohlrabi, beet, radishes, and young artichokes, half ripe pumpkins but not their leaves.

In the Philippine Islands, Peromyscus maniculatus has recently broken out badly in the island of Cebu which has a rainfall of 60-80 inches per annum, but was suffering from famine when the trouble followed. The coconut palms and the barbees were chiefly damaged. Whether true or not, the statement has been put forward by the Philippine Department of Agriculture that the measures which they took against the locusts "probably resulted in the saving of tens of thousands of pesos worth of crops".

In the Philippine Islands the locust multiplies in the vast grass wastes there called "cogonales" from the cogon grass (Lagerata exaltata) which covers them. Similarity of conditions in the Philippine islands & Peninsula of Malaya is in Malaya called "lallang jawa" because of its great real similarity to the lallang which is Imperata cylindrica. These grass wastes have arisen out of a shifting agriculture: they are deserted plantations, kept in grass by repeated fires. The Philippine agriculturist is said by Whitford, a Philippine forest officer, sometimes to sow these wastes with a quick-growing tree, that it may smother the grass and that he may resume his agriculture by felling.

It will be <sup>admitted</sup> how similar are the lallang wastes of northern Malacca and the Negri Sembilan to the locust regions of the Philippine Islands; but they are fortunately less extensive.



It appears to me that in the Ialang wastes we have got what would be a "permanent locust-region", were it not that the wastes are artificial and artificially maintained: for as every one knows they will return to belukar if fire be withheld from them. I am told that the eldest clearings are about fifteen years old and that the majority are about eleven years old. It appears that they are very frequently fired in the ~~very~~ recent ~~time~~ time, so that tree seedlings are periodically killed. Their return to belukar is consequently postponed. I believe that the abundance of the locusts is so bound up with the existence of these Ialang wastes that to narrow the wastes would assist greatly in the combat with the locusts.

Narrow-  
ing the  
wastes. I suggest therefore that as far as possible protection from fire should be given to the wastes, in order that tree-seedlings may spring up on them, and that as far as can be done seeds of trees likely to grow should be broadcast where cultivation and fires have removed all vegetation of the desired kind. In the Ialang wastes of Malacca two small trees are among the first to assert themselves in the grass, namely Merindia citrifolia and Faltonhera gambusia, which fruit so freely that to collect their seeds would not be a matter of great cost: these and perhaps others might be broadcast.

~~Indirect~~ Direct methods of attacking the locusts I consider *also* necessary, because although the damage done to crops hitherto has been very little, the swarms are increasing in number, and so long as this is the case we have to anticipate damage; and in consultation with the Honourable the Resident, Malacca, these arrangements



plans for destroying locusts which were found to be in existence in Malacca at the time of my visit have been altered somewhat for the sake of efficiency. On my

Arrange-  
ments for  
destroy-  
ing loc-  
usts in  
Malacca.

arrival in Malacca on July 2nd, I found that four locust-catching bags of the type were in the Territory, and that four youths on \$14 (dollars fourteen) per month had been appointed locust-catchers. I saw the work of two of these youths, and am convinced ~~that~~ that their service is and will be ineffective

because (1) they are too young to command others and others whose help is required in locust-driving, (2) they consider themselves entitled to wages which men are getting in theagri Sembilan and are purchasing rice-mess, and (3) they are entrusted with too responsibilities--the finding of hoppers and the destroying of hoppers--and are not under such control ~~as~~ as will prevent them from overlooking a swarm of hoppers which happens to be in a place inconveniently far from their homes or where for other reasons working may be distasteful. I also ascertained that the nature of the locust-catching bags is unsatisfactory: one is apparently useless; the other three are obsolete traps lent by the Department of Agriculture, P.M.S.

After ten days of examining the conditions of work in Malacca, and after seeing two pairs of locust-catchers at work inagri Sembilan, two new locust-catching bags were ordered from a Chinese tailor in Seremban who makes them for the Department of Agriculture, P.M.S. and the following scheme was agreed upon.







As stated above, I anticipate that there will be hoppers to catch in 1916 in every week of the year.

I discussed other matters with the Resident, one of which was the use of poisons; and we decided that they should not be used in Malacca Territory because of the danger of poisoning buffaloes; and because of another disadvantage namely that the poison in the dead locusts body kills the bird that eats it and is itself therefore something which reduces the natural enemies; and this in what seems like a "permanent locust-region" were foolishness.

It was further suggested by me that if a better appointment cannot be made, the Inspector of Coconut Trees, Malacca, might be seconded for work as locust-destroyer, a youth being put under him to learn Coconut work. Perhaps two of the four youths who ~~had been~~ were working as locust catchers when I went to Malacca may prove suitable for the work of locust Scouts.

I left the provisional appointing of the locust-destroyer and the locust-scouts to the Resident, Malacca, and returned to head quarters on July 11th., but am prepared to proceed again to Malacca as soon as my presence there can again be to any effect.

In conclusion I should like to urge again that the question of reafforesting the Lallang wastes should be considered, as I think that by doing so we shall gain more ground on the locusts than by any other means. That some Lallang land is wanted for grazing does not offer any difficulty necessarily, for the disturbance by the cattle and the graziers takes care of it: on the big grazing paddock of the Lallang Lands Estate I found no signs of locusts.



I regret that in Malacca the order has been given to locust catchers to burn lalang as a simple means of attaining their object; and that the locust catching gangs in Negri Sembilan do the same.



Received 15.7.4

Filed.....

*Department of Agriculture,  
Federated Malay States.*

Kuala Lumpur, 14th, July, 1924.

Sir,

Thank you very much for your note of this morning. The more I look into this species of locust the less inclined am I to state definitely what species it belongs to. The following quotation is from one of the letters from the Phillipines but I would not place too much trust in this:-

"After a close examination of the individuals I would say that the specimen of your *P. danica* seems to be identical with *P. migratoroides* of the Phill: which is one of our most destruct species".

My bulletin is only waiting for the arrival of the coloured plates from England which were sent home over six months ago!!

With specimens kept in captivity copulation took place 19 days after wings were obtained, but unfortunately no eggs were laid. I should say that about one month elapses or a little longer. I imagine the distance which the female will wander will depend largely on weather and food conditions but it could certainly travel a very considerable distance.

Yours sincerely,

*H. C. Pratt.*

Govt: Entomologist, F. M. S.

L.H. Burkill Esqr:

Director of Botanic Gardens,  
Singapore.

B8-1/67



## MEMORANDUM.

From

To

Date

190

Dear Mr. Mitchell

This is to <sup>record in writing</sup> ~~confirm~~ the conclusions which  
 regarding court work which I put before you for your  
 consideration this morning. They are:-

i. That suppression of the courts is out of the  
 question, but a measure of repression <sup>is desirable</sup> ~~is necessary~~  
 of what has been undertaken - an intelligence department  
~~for information~~  
 ii. That the man or men <sup>to be</sup> employed in interpreting  
 the courts should not ~~take~~ <sup>be</sup> his information ~~or~~  
~~directly from~~

iii. To carry out the work it is necessary that  
<sup>information</sup> ~~the appearance of~~ <sup>the appearance of</sup> swarms  
~~of the~~ <sup>of the</sup> should be collected systematically ~~and~~ that the  
 places where <sup>the courts</sup> lay off should be ascertained as  
 near as possible, the ~~the~~ hatching of the tippers  
 detected and ~~the~~ destruction there proceeded with.

iv. Malacca territory having relatively few warts,  
 by means of peripatetic <sup>through the</sup> ~~of~~ information <sup>from</sup> ~~from~~ plantations  
<sup>much information</sup> ~~can be~~ <sup>obtained</sup> ~~and~~ <sup>and</sup> completed ~~the~~ <sup>the</sup> work I

BS-1/68 suggest that a scout should be employed in the  
 northern & another in the southern division who will visit







Department of Agriculture  
Federated Malay States

Kuala Lumpur 27th May 1914

No. 154/14

Sir,

I have the honour to inform you that during my recent visit of inspection of the locust work in the Negri Sembilan from May 1st-8th I had occasion to travel from Tampin to Batang Malaka by rail on my way to Alu Gemenchen and that for 10 miles along the line in Malacca from Keru to Tebong and beyond there was almost a continuous swarm of locusts in the 4th and 5th instar and just flying. This swarm will be a very large one and is quite likely to enter the Negri Sembilan. Moreover there is no reason to believe that it is the only swarm in that district.

2. One of the Malay Manders working in the coast district, near Penkalan Kempas a steady and reliable man-informed me that he had been told by Malays that locusts occurred in large quantities in several parts of Malacca besides



Department of Agriculture

United States Department of Agriculture

Washington, D. C.

Department of Agriculture

United States Department of Agriculture

1914

It is hereby ordered that the following be done: That the Secretary of the Department of Agriculture be and he is authorized to do all such things as may be necessary to carry out the purposes of this order.

Approved: \_\_\_\_\_  
Secretary of the Department of Agriculture



5

Misc. 2024/1913

From the Resident Malacca, 15.7.14

Sir,

I have the honour to forward herewith copy of a letter from the Secretaries of the Malacca Planters' Association on the subject of the locust pest in Malacca and I do so because in the last paragraph of the letter they ask if His Excellency will receive a deputation from the Association on the subject.

2. Much of what is written in their letter is incorrect and part is incomprehensible. What actually took place was clearly set forth by my predecessor in his minute of 6th. June 1914 on N.S. 167/1914 and this was embodied in your letter 3492/1914 OF THE 29TH<sup>th</sup> ultimo, which I duly communicated to the Association.

3. Since that letter the Director of the Botanical Gardens has been here to report and you have doubtless received his report. I acted at once on the conclusions which he arrived at and engaged a destroyer today. To day also I gave full instructions to the Deputy Collector of Land Revenue and the District Officers.

In conclusion I must emphasize what my predecessor has already stated that I think the danger from this pest has been considerably exaggerated. During the month that I have been here I have <sup>not</sup> received a single complaint from a planter of actual damage done by the locusts. I have heard one or two vague and general reports and that is all.

Signed W.C. Michell,



Enclosure to 5

Malacca Planters' Assoc.

10th, July, 1914

Sir,

We have the honour to acknowledge receipt of your letter of the 1st instant for which we thank you.

We are indeed surprised at the information which your letter contains and at the apparent indifference of the F.M.S. ~~Malacca~~ Agricultural Department to the locust pest in Malacca, more especially after being informed that the proposal for co-operation first came from the F.M.S. Government.

It would appear from your letter that the Resident treated solely through individuals, and not through Government direct, and the only reason we can attribute the action of the Director of Agriculture, F.M.S. to is, that he was not approached through the proper channels and therefore had no authority to send men to Malacca.

This is borne out by a statement made by the Director in conversation with a member of this Committee a few days ago, when he stated, that he was quite ~~ready~~ prepared to commence operations in Malacca as soon as he received instructions to do so.

This committee cannot agree that the experience with regard to the locusts constitutes any good argument for the formation of a separate Agricultural Department by the Government of the Colony. We are of opinion that had the sphere of the Agricultural Department, F.M.S. been extended to Malacca when first asked for 14 months ago, the present state of affairs would never have existed. The formation of a separate agricultural Department for the Colony will mean the expenditure of a large sum



(4)

15.6.14

Sir,

In reply to your letter no.7 in 12567/15 of the 28th. May regarding the occurrence of locusts in Malacca territory, I am directed to inform you that as suggested in your previous letter of the 5th. January an endeavour was made to cope with this pest by co-operation instead of by separate action.

2. A vote was authorised and the Resident communicated with the Asst. Agricultural Inspector who met him on the 24th February. After discussion it was arranged that the services of the F.M.S. Malay handovers should be obtained from the Director of Agriculture. The Asst. Inspector was to apply for them.

3. As nothing ~~more~~ further happened the Resident wrote to the Director of Agriculture on the 20th. March. No answer was received. A reminder was sent. Ultimately on the 24th. April, the Director replied that he could not spare the men asked for.

4. Since that time the Resident has been employing Malacca men and Malacca resources except for two traps lent to him by the Director of Agriculture, and he regrets that though Malacca is not free from the pest which is fostered by the extensive Iallang wastes in N.S., it is comparatively free except for occasional swarms that fly over the border from these wastes.

R.J.W.

To Under Secretary, F.M.S.



# The Tebong Rubber and Tapioca Estate, Limited.

TELEGRAMS: STRATTON, TEBONG.

TELEPHONE: 38, MALACCA.

P. O.: TAMPIN, F. M. S.

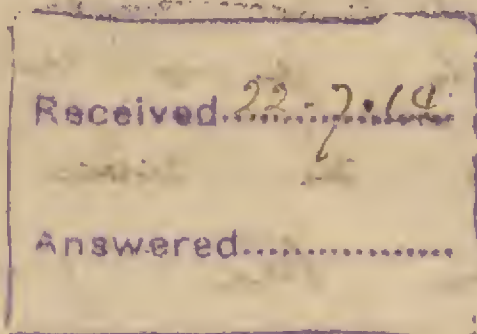
RLY. STATIONS: TEBONG: AND PRIVATE  
SIDING.

TEBONG,

17. 7.

191

4



Please refer to		

Dear Mr Burkhill -

Thank you very much for copy  
of June Bulletin. I was under the  
impression that there was a bigger tree  
than this (no doubt dead some time ago) which  
produced 28 lbs of rubber in 28 tappings  
at 28 yrs old in 409 (I think) - I seem to remember those  
figures given either in one of Ridley's  
reports or in a 1910 Bulletin & about  
March. This particular tree was, I think,  
separated from the close-planted lot. I also  
seem to remember that its age was given  
at 10 ft. 10 ins. in 409 & 410.

The decrease in rate of growth is very marked  
in the case of No 2. I suppose this is due to  
close planting, & possibly the weakening effect of  
some similitudes, which would naturally tend  
to kill a tree rather than a small one.

Another large swarm of flies has come from  
Sumatra way, & is now copulating on my lawn,  
& in the rubber below the banyans. There are now flies



and hoppers simultaneously at Budit Patas.  
The flyers are apparently the survivors of  
the swarm which produced the hoppers,  
as they are few in number & have been  
continuously on the ground since they  
first went there 10 or 11 weeks ago. Thus  
we have the "overlap" you mentioned to  
me here also.

Yours sincerely

Chapman

Enclose cheque for \$10/- . Please send  
me Vol I of the "Bulletin" as issued  
(including back nos. except no. 7, the one  
you sent me) & 10 seedling

Avocado <sup>Pear</sup> plants in wicker case  
addressed Tebong Siding, freight payable  
here. Any hints as to special treatment  
of the seedlings would be most welcome.  
W.S.

[Have since found about 7 small swarms of hoppers  
<sup>flyers being present in each case,</sup>  
 $\frac{1}{3}$ " long, in different fields of the Estate, evidently  
hatched in ravine edges.] L 21/1/4.



Land Office,

L. O. 790/14.

Malacca, 17 JULY, 1914.

Received 18-7-14

Answered.....

Sir,

I have the honour to enclose as requested a list showing whereabouts of locusts in Central District, Malacca, during the week 5th to 12th July.

The facts as shown in the list were submitted by the Penghulus of the various districts. Nine Penghulus have not furnished even nil returns, and this I take to mean that no locusts were observed in their mukims during this week. Should they report that locusts have been seen, I will send a further list reinforcing this one.

2. I myself observed a small flight of locusts at Erd mile, Balek Panjang at about 2.30 p.m. on 7th July by road side.

3. I do not think any of the swarms observed were large ones. The word "plenty" in the list, coming from penghulus is not a satisfactory indication of quantity, I am afraid.

I have the honour to be,

Sir,  
your Obedient Servant,

*W. S. Evans*

Dy. Collector of Land Revenue.

J. H. Burkill Esq.,

Director,

Botanical Gardens  
Singapore

B8-1/74



Return of all swarms of locusts  
in Central District  
from 5<sup>th</sup> to 12<sup>th</sup> of July 1914

Date	Time	The place at which the Locusts arrived	Quantity	Condition
1914		<b>Klebang Besar</b>		
July 11 <sup>th</sup>	11 A.M.	Pulau Gadong	not many	eating grass
		<b>Batu Berendam</b>		
" 6 <sup>th</sup>	4 p.m.	Sungei Putat	plenty	— —
" 7 <sup>th</sup> to 9 <sup>th</sup>	Morning	— do —	— do —	— —
" 10 <sup>th</sup> to 12 <sup>th</sup>	— —	— do —	decreasing	— —
		<b>Balei Panjang</b>		
" 5 <sup>th</sup>	11 A.M.	Tambak Malim	plenty	— —
" 7 <sup>th</sup>	12 noon	Tambak	— —	— —
" 9 <sup>th</sup>	3 p.m.	Kampung Padang	decreasing	— —
" 10 <sup>th</sup>	Morning	Tambak 2 3/4 Mile	plenty	— —
		<b>Bachang</b>		
" 5 <sup>th</sup>	9 A.M.	Pasir Putih	plenty	— —
" 6 <sup>th</sup> to 7 <sup>th</sup>	early morning	— do —	— —	— —
		<b>Bukit Barn</b>		
" 5 <sup>th</sup> to 7 <sup>th</sup>	early morning	Ayer Keroh	plenty	settling to breed
" 8 <sup>th</sup> to 10 <sup>th</sup>	— —	Leong Batu	— —	eating grass
" 11 <sup>th</sup> to 12 <sup>th</sup>	— —	Bukit Bonang	— —	— —
		<b>Bertam</b>		
" 6 <sup>th</sup>	9 A.M.	Ayer Ham Road	— —	— —
" 9 <sup>th</sup>	3 p.m.	— do —	— —	flying
" 10 <sup>th</sup>	2 p.m.	Boundary of Balei Panjang	— —	eating grass



# MEMORANDUM.

From

Ag Dos

To

Director of Gardens  
Singapore

July 17<sup>th</sup> 1914

Received 20/7/14

Answered.....

Dear Mr Bunkill

I send herewith a report on the  
locusts in my district as correct as I can  
make it at the moment.

Of course the movements of the flies is so  
sudden that no list can be correct for  
long. Part of the swarms I have seen



I noted my self - all in fact except. Batang

Nalacca Chokong & Umber

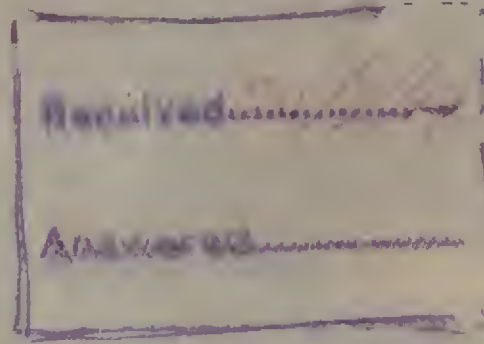
I ~~can~~ have not been able yet to place the  
Swarm you mentioned at 15 miles Nalacca  
Jasie Road.

Yrs sincerely

J. J. Nale



The date below the account for each mention represents the date on which the information was received - the conditions noted by personal inspection.



Marliman.

1. Round Sungai Rengas District
  2. Near IS M
  3. Permatang Teluk
- } all Breeding

9. vii. 14.

Sabah

In neighbourhood of Bukit Gadang Breeding.

6. vii. 14.

Sungei Rambai

Near Parit Rerawas

Beginning to breed.

9. vii. 14.

Kesang

In the Sawah at 18<sup>th</sup> Mile Selatan Rd Not Breeding

14. vii. 14.

Chohong.

Hoppers at 25  $\frac{1}{2}$  mile.

17. vii. 14.

Jasin

None

17. vii. 14.

Rimba

None

17. vii. 14.



Ayar Pauas.

None

13. viii. 14.

Myalas

Very large numbers of both  
flies & hoppers.

Especially at 30  $\frac{1}{2}$  M. large  
quantities of hoppers

13. viii. 14.

Jus.

None

13. viii. 14.

Chin Chin.

Large numbers of hoppers 23 M.

13. viii. 14.

Serkam.

Swarm of flies just entered  
in the sawah at ~~11~~ 11  $\frac{1}{4}$  M.

Not breeding

13. viii. 14.

Chabai.

Large numbers of hoppers at 23 M + 29  $\frac{1}{2}$  M.

15. viii. 14.

Sempang

Very large swarm of flies in sawah  
13  $\frac{1}{4}$  M. on other side of road.

In sawah males only

Some breeding

16. viii. 14.

Tedong.

Swarm at 12 M. <sup>inland 20</sup> breeding

16. viii. 14.

Umber

Two swarms of flies.  
(No report from Pang as to breeding or not)

16. viii. 14.



Batang Palaka.

Swarm of hoppers  $29\frac{1}{2}$  m.

17. VII. 14.

Bukit Singgeh

None

17. VII. 14.

Selangor

None

17. VII. 14.

W. D. M. C.

17. VII. 14.



Received 13-7-14

(Gen. 87)

## Official Memorandum.

Answered.....

11th July, 19 14.

From

It is of course a Pachytylus.

To

Dear Burkitt.

The Authorities in Sumatra have been consulted several times and specimens of the locust forwarded to them. They state that this locust has never been seen in Sumatra.

The Indian Museum identified the locust as Pachytylus danicus. At the British Museum, at home, they said it was certainly not danicus. The Phillipine people said it was the same species as their locust, and Russian authorities would not commit themselves!!! I am sending a whole series of specimens, dried, to England.

Yours Sincerely,

H. E. Pratt.

B8.1/78



Teboung.

2 swarms hoppers (very young - less than  $\frac{1}{2}$ " long) in lalang on Estate. Must have been born close at hand.

The first flyers here only began to fly 10 weeks ago. Time of incubation <sup>most</sup> ~~may~~ have been less than 9 weeks. There have been a certain number of <sup>continuous</sup> flyers close by for the 10 weeks, so that the minimum of incubation (period) cannot be stated.

13/7/14. W. M. M. M.

B8.1/79



POST CARD  
FEDERATED MALAY STATES

THE ADDRESS ONLY TO BE WRITTEN ON THIS SIDE



*L. H. Brookhill, Esq.*

Received.....

*15 JUL 1914*

Answered.....

*of G.*

*Singapore*





Commence work in the boundary under the direction of the Asst. of the Agricultural Inspector, M. Sembilan and Rahang with some of his staff apparatus.

This Subordinate who might be a land bailiff Secunder for the purpose of learning what to do, by working on the boundary, would when the swans in the boundary have been destroyed move his operations southwards becoming independent of the Asst. Agricultural Inspector, M. Sembilan as he completes his duties within the territory of Malacca.

The Asst. Agricultural Inspector should still be able to call him back to the boundary if it should be urgently necessary.

J.H.B.

10/Jan S. 11. 13.1.14

Y.S.

Submitted a note of 18-01-14  
May be approved? The R. 11. 11.  
Can arrange with the Ins.  
Authorities for joint action  
19.1. R. J. W.

appd

19.1.14 S. 11. 11.

R. 11.

Please note return  
for warrant

20.1.14 S. 11.

C.S.

Notes

21.1.14

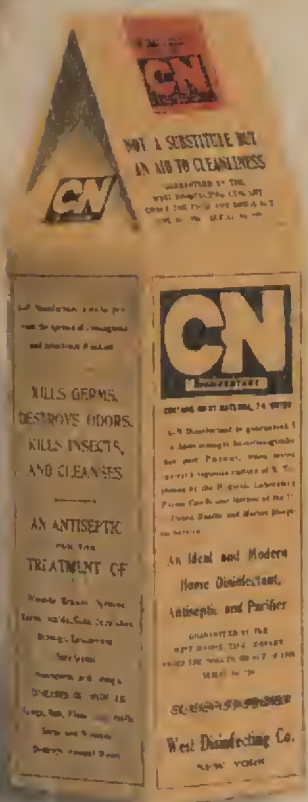
Treasurer

Please prepare

warrant

C. 11. 11. 14





# West Disinfecting Company

MANUFACTURING CHEMISTS

## Disinfectants and Sanitary Appliances

LIQUID SOAP AND DISPENSERS

EXECUTIVE OFFICES. 2 EAST 42<sup>ND</sup> ST.

BRANCHES IN PRINCIPAL CITIES



LABORATORY & WORKS  
LONG ISLAND CITY, N.Y.

New York, February 10, 1915.

Bureau of Agriculture,  
Government of the Straits Settlements,  
Singapore, Straits Settlements.

Gentlemen:-

We take the liberty to address you and direct your attention to the enclosed copy of a letter which we have just received from the Government of the Philippine Islands.

This letter deals with the question of the locust pests in that country and how efficiently our product, CORO-NOLEUM, rids the fields of both the locust and the hopper, when used in a 1% solution. A gallon of CORO-NOLEUM costs about \$1.00 gold, free delivery to your country, provided no duty has to be paid. As this product is used one gallon of CORO-NOLEUM to 100 gallons of water, for the above mentioned purpose, the solution costs you just 1¢ per gallon or 1¢ per liter.

CORO-NOLEUM is used not only as an insecticide but it is primarily important as a high class disinfectant and heads the list of our special products. This product has been tested by the United States Government and we are supplying our Government and many others. In Bulletin No. 82 of the United States Public Health Service, copy of which we are sending you under separate cover, on Page 43, you will find that Chloro-Naptholeum, now called CORO-NOLEUM, is 5 to 6 times more efficient bacteriologically than pure Carbolic Acid when tested against a vigorous culture of Bacillus Typhosus.

We therefore, feel that it would be to the advantage of your Government to introduce this product in hospitals, barracks and similar institutions where sanitary conditions are of uppermost importance.

We are also sending you a copy of our catalogue which will give you an idea of the general line of products which we manufacture, and should you desire any further information in regard to any of these products, we shall be glad to have you advise us.

Placing our services at your command, we are,

Yours very respectfully,  
WEST DISINFECTING COMPANY

Vice-President

Enc. 1 letter  
Under Cover 1 bulletin  
1 catalogue

B8.1/81

Received 29/3/15

Answered



THE GOVERNMENT OF THE PHILIPPINE ISLANDS  
DEPARTMENT OF PUBLIC INSTRUCTION  
BUREAU OF AGRICULTURE

Received 25/3/15  
Answered.....

Manila, December 10, 1914.

Sir:

I have the honor to acknowledge receipt of samples of your insecticides and germicides.

As previously stated, our office is desirous of obtaining a compound that may be utilized as a contact insecticide against locust in the nymph (hopper) stage. To this end, I have tried out in a small way the samples of Coro-Noleum. While the magnitude of this experiment makes it impossible to state definitely its value under actual field conditions, such as obtain in the uninhabited lands, yet I believe that, from what I have seen, we can utilize it successfully in destroying this pest. As you are aware, the test made was conducted upon the fifth instar hoppers almost ready to take wing, which are, of course, more resistant than the younger ones to an insecticide. In view of the results obtained in this trial, I have placed a requisition for one hundred gallons of Coro-Noleum, which amount should furnish enough material to determine the exact value of the same as locusticide. Should opportunity offer, I will also test it out on such other pests as are brought to the attention of this office. Upon completion of our experiments, should the same be desired by you, I will be pleased to furnish you with a copy of the results obtained.

Very respectfully,

(SD.) D. B. Mackie

Entomologist.

Mr. Julius Norden,

The West Disinfecting Co.,

New York, N. Y., U. S. A.

88-1/82



Received... 3.3.15

(13)

MEMORANDUM.

From

Answered.....

To

I. H. Burkill Esq. M.A. F.R.S.

Director of Gardens S.S.

Botanic Gardens.  
Singapore.

March 2nd. 1915.

Dear Mr. Burkill,

I last wrote you on February 19<sup>th</sup>.

Hoppers, small black objects, have appeared to day at three places, all of which places are in the locality of Jasin.

During the whole of February there were no Hoppers in the whole of the Malacca Colony.

I shall write again when I have further information to report.

Yours sincerely  
P. C. Bowley - Brown.



Botanic Gardens,

Singapore,

12th. January, 1915

Dear Mr. Michell,

You will remember that I advocated re-afforestation as a means of dealing with the locusts, under the idea that locusts only attain to the migratory swarm condition in wide grass lands.

Recently in the Philippine islands, the small tree - *Leucaena glauca* - has been recommended for sowing in tallang wastes, there called cogonales, as a means of getting a revenge off them as fire wood.

I am sending a bag of seed of this tree to Cowley Brown. And I should like it to be sown broadcast without any preparation of the ground in a stretch of pure tallang where the result can be observed. I write to ask you if you allot a bit of such tallang land, say  $\frac{1}{20}$  acre, somewhere not too remote, which is unlikely to be demanded for cultivation for a few years, where the result of such an inexpensive experiment as this can be watched. It is possible that there may be such land at Ayer Kreh where I have never been.

Sincerely yours,

Signed (J. Henry Burkill)

Dear Cowley Brown,

The bag of seed herewith sent contains approximately 8700 seeds. Would you please see Mr. Michell with regard to the above letter. The tallang should be burned off as a preliminary.

Sincerely yours,

*J. H. Burkill*

B8-1/80



# MEMORANDUM.

From

To

Received 25/2/15

10 14

Answered.....

I. H. Buskill Esq., F.R.S.

Director of Gardens. S.S.

Botanic Gardens.

Singapore.

February 18th 1915.

Dear Mr. Buskill,

So far this month no Hoppers have appeared. There are a few swarms of Flies. One swarm of Flies is young and I think the Flies constituting it must have been bred in some open space surrounded by jungle.

I hope the "Ementé" — as the papers call it — has not inconvenienced you directly or your Staff.

Yours sincerely  
P. C. Boulton-Brown.